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**NAVY PUBLIC WORKS CENTER
NORFOLK, VIRGINIA
UTILITIES DEPARTMENT**

STANDARD OPERATING PROCEDURE / JOB HAZARD ANALYSIS

TITLE
HANG CROSS ARM ON NEW POLE
DEADEND WITH ENERGIZED CIRCUITS

PROCEDURE NUMBER
WC 624 HVE 020

DISTR:
601A
610
620
WC 624

SIGNED: _____
(DATE)

APPROVED: _____
(DATE)

SAFETY PROFESSIONAL: _____
(DATE)

MANAGEMENT OFFICIAL: _____
(DATE)

DATE: _____

REVISION DATE: _____

HANG CROSS ARM ON NEW POLE DEADEND WITH ENERGIZED CIRCUITS

Purpose:

Hang a cross arm on a new deadend pole with energized circuits on it.

Potential Energy Sources:

1. Energized conductors within close proximity.
2. Deenergized conductors which have not been properly grounded.

Tools and PPE:

Tools: Bucket truck, hot hoist, wire grips, rubber line hoses, insulating blankets, insulator hoods, hydraulic drill, pneumatic drill, brace and bit, hand line. PPE: Insulating rubber gloves, insulating rubber sleeves, Nomex coveralls, Nomex hood, hard hat, safety glasses, safety shoes, safety harness, orange vest, and back brace if required by back injury prevention and control program. The class of rubber gloves and sleeves will depend on the exposure voltage as per the following: Class 0 - up to 1,000 volts, Class 1 - up to 7,500 volts, Class 2 - up to 17,000 volts, Class 3 - up to 26,500 volts, Class 4 - up to 36,000 volts.

References:

1. PWC Occupational Safety and Health Program Manual, PWCNORVAINST 5100.E
2. SOP WC 624 HVE 001, Set Up and Secure Bucket/Auger Truck
3. Occupational Safety and Health Standards for General Industry (29 CFR PART 1910): Subpart I, Personnel Protective Equipment; Subpart R, Electrical Power Generation / Transmission / Distribution; Subpart S, Electrical
4. NFPA 70 E, Approach Distances To Exposed Energized Electrical Conductors and Circuit Parts
5. ANSI C2-1987, National Electrical Safety Code
6. Electrical Transmission and Distribution Safety Manual, P-1060
7. The Lineman's and Cableman's Handbook, 5th ED

Procedures:

1. Set up bucket truck. Refer to SOP WC 624 HVE 001, Set Up and Secure Bucket/Auger truck for details.
2. When operating a bucket truck the following safety rules will be followed.
 - a) Only an authorized person, one with a current government license to operate an aerial lift, will operate the bucket.
 - b) Do not use the bucket truck if winds exceed the truck manufacture's specified limit.
 - c) Do not perform energized work in wet weather, unless an emergency.

HANG CROSS ARM ON NEW POLE DEADEND WITH ENERGIZED CIRCUITS

- d) Personnel in bucket will wear a safety harness with a lanyard attached to the boom or bucket.
- e) Do not exceed the bucket's weight limitations.
- f) Stand firmly on the floor of the bucket with both feet. Do not sit on the bucket's edge or use planks, ladders, or other such devices.

3. Insulate all energized overhead circuits which are within 3 feet of work area. Insulate any deenergized overhead circuits that have not been properly grounded per Lockout and Tagout procedures. Personnel in the bucket shall wear Nomex coveralls, Nomex hood, safety glasses, safety shoes, insulating rubber gloves and sleeves, and hard hat.

4. In order to mount the new cross arm personnel in the bucket will wear Nomex coveralls, safety glasses, safety shoes, insulating rubber gloves and sleeves, hard hat, and ear protection when drilling. Ground personnel will wear hard hats, safety shoes, gloves, and orange vests if work is adjacent to a road or in a parking lot. Personnel in the bucket will carry a hand line aloft with them

5. Drill hole(s) in pole if necessary. Use hydraulic, pneumatic, or brace and bit to drill hole(s). Avoid using an extension cord when working near energized conductors over 600 volts.

6. Hang new cross arm and insulators. The cross arm will be a double or, if the load warrants, a triple cross arm. Attach the arm and have the ground personnel level it. Once the arm has been leveled, secure the arm in position with a hard head or bolt. Attach deadend shoes to the insulators and mount on the cross arm. The type and number of suspension insulators will depend upon the system voltage. Attach hardware for down guy. If guy cannot be installed at this time due to interference with old pole, secure the new and old poles together with non conductive rope. Refer to attached LANTDIVENGCOM Pole Plates for further information concerning equipment and installation.

7. Transfer conductors from old cross arm to new cross arm. Catch off one end of hot hoist to the insulators attached to cross arm and secure the hot hoist's other end to the conductor using a wire grip. Hoist the two outside conductors simultaneously in order to keep the cross arm straight. Hoist enough slack in the conductor to allow it to be removed from the deadend shoe on the old cross arm. Place the conductor in the deadend shoe on the new cross arm and tighten bolts. Cut any excess wire off the conductor. Ensure the conductors are sagged together and the cross arm is level. Slack off hot hoist and repeat above procedure for the center conductor. Personnel will wear a

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Nomex hood in addition to other PPE.

8. Remove insulating material from overhead conductors wearing PPE as per Step 3. Remove material in reverse order of placement.

9. Secure bucket truck. Refer to SOP WC 624 HVE 001, Set Up and Secure Bucket/Auger Truck, for details.